June 2024

2023 TCFD Report

STATE STREET GLOBAL ADVISORS

Contents

Introduction

State Street Global Advisors ("we," "our," "us," or "the firm") is the asset management business of State Street Corporation ("State Street" or "Parent"). We are the world's fourth largest asset manager, responsible for over $4.13 trillion in assets under management ("AUM").[1] We are a globally scaled index and systematic investment manager with strengths in index investing (institutional and ETFs), cash, and select active and multi-asset capabilities. Our active and index capabilities cover the risk/reward spectrum and are underpinned by a range of sustainable investing capabilities.

We believe that managing climate-related risks and opportunities is a key element in maximizing long-term value for our clients. We seek to address clients' demands for climate-related investing opportunities by offering a wide range of strategies to help them meet their investment needs and objectives.

Further, our Asset Stewardship program focuses on engaging with portfolio companies to mitigate risk to our clients' portfolios while seeking long-term value creation. In doing so, we advocate for transparent disclosure and industry standards, including with respect to climate-related factors, to provide investors with appropriate information to assess both the value and risk of their investment. Climate risk management has been part of our stewardship efforts for nearly a decade. Through our engagements with portfolio companies, we seek to better understand how companies are effectively managing and disclosing climate-related risks and opportunities and encourage enhanced disclosure in line with our expectations.

This is our third report on the TCFD recommendations, in which we disclose how we manage climate-related risks and opportunities, both in our capacity as an asset manager (i.e., risks to our clients' investments) and as a business (i.e., emissions related to business operations and the potential business strategy implications of climate risk). While this TCFD report should be considered separate and distinct from State Street's TCFD report, which was published as part of its Sustainability Report earlier this year, we leverage our Parent's existing best practices and processes and, in some cases, people and committees, to help us manage certain aspects of climate risks in our business. We have some overlap with State Street in nearly all areas of this report, but it is important to note the following:

- The Risk Committee of the State Street Board has a remit to oversee the risks present in State Street's business, including climate risk.
- Our Risk Management team is part of State Street's Enterprise Risk Management organization, and we draw on enterprise risk processes and frameworks to aim for consistency in our approach.

- Our business continuity and disaster recovery strategies are developed and implemented in alignment with State Street.

- Our internal metrics related to our carbon footprint are included at the corporate level because we are co-located with State Street. We do not separately track Scope 1, 2, and certain categories of Scope 3 emissions at this time.

While we work closely with other parts of State Street across many activities, the asset management business faces distinct risks and opportunities that are outlined in this standalone TCFD report. In 2023, key highlights of our focus on managing climate-related risks and opportunities for clients and our business included:

As a manager of client assets

- Providing clients access to a broad offering of investment solutions that align with their climate- and low-carbon-related objectives

- Extending our Asset Stewardship team's climate-related disclosure expectations to more regions around the world, reflective of our global perspective

- Executing targeted engagement campaigns around our expectations for climate-related disclosures, including holding more than 160 portfolio company engagements on climate-related matters to encourage disclosure and board oversight, of which 85 involved in-depth discussion of climate transition plans[2]

- Launching our Proxy Voting Choice program, which offers investors the ability to direct how shares held in the eligible funds they own are voted; the program offers eligible investors a range of voting policies, including a sustainability-focused policy, that can be applied to the voting of shares owned by the eligible funds in which they are invested[3]

As a business

- Developing and launching new climate investment strategies and enhancing existing climate investment strategies to meet client preferences

- Strengthening State Street's governance around the management of sustainability-related issues by establishing a Sustainability and Impact Committee, as a sub-committee of the Executive Committee, co-chaired by the Chief Risk Officer and Chief Administrative Officer

- Enhancing State Street's climate risk identification process by conducting a global survey focused on refreshing its inventory of climate-related risk drivers and developing a methodology to quantify the likelihood and impact of those risk drivers on State Street

- Completing a firmwide climate-related scenario analysis exercise across all asset classes, where data was available, for State Street Global Advisors to attempt to understand potential climate-related transition risk under different scenarios

- Conducting our annual State Street Global Advisors Climate Risk Workshop with the purpose of identifying key drivers of climate risks that could impact the firm's financial performance, operations, and franchise value

- Reducing State Street's operational footprint by measuring and managing the direct Scope 1 and 2 emissions deriving from our buildings' energy consumption, as well as applicable indirect emissions across our value chain

Although the TCFD provides helpful guidance, methodologies for measuring climate-related risks and impacts are still in a nascent stage; therefore, our climate risk management approach will continue to evolve as best practices emerge and as data becomes more readily available and reliable. We will continue to work with relevant stakeholders to enhance our disclosures over time in line with our core principles of transparency and rigor.

Report Summary

The table below briefly summarizes our disclosures across the four TCFD pillars. Full descriptions are in the chapters that follow.

Figure 1 **Summary of State Street Global Advisors Disclosures**

TCFD Recommendation Pillar	Key Points
Governance Disclose the organization's governance around climate-related risks and opportunities.	
Describe the board's oversight of climate-related risks and opportunities.	State Street's Board of Directors (the "Board") provides ongoing oversight of State Street Global Advisors' near- and long-term business strategies. In 2018, the Board assumed responsibility for oversight of sustainability obligations, initiatives, and strategies, which was modified in 2024 to include matters related to sustainability and impact. In 2021, State Street formalized its governance over sustainability initiatives and activities by specifically including oversight responsibilities in the charters of each of the following Board committees: Examining and Audit, Human Resources, Nominating and Corporate Governance, Risk, and Technology and Operations. During this process, the Risk Committee of the Board added responsibility for the risk management components (including climate risk) of State Street's sustainability obligations, initiatives, and activities to its mandate. State Street Global Advisors' Chief Executive Officer ("CEO") and Chief Risk Officer ("CRO") meet annually with the Board Risk Committee and also provide monthly reporting, including on risk management components of climate-related matters, as appropriate.
	The Nominating and Corporate Governance Committee of the State Street Board oversees corporate governance components of State Street's sustainability and impact obligations, initiatives, and activities, including matters related to climate within the Committee's scope of responsibilities. To share insights about best practices, the State Street Global Advisors Asset Stewardship team typically reports twice annually to the Nominating and Corporate Governance Committee.
Describe management's role in assessing and managing climate-related risks and opportunities.	The State Street Global Advisors Executive Management Group ("EMG") is the consultative body responsible for strategic planning, business-goal and financial tracking, overall firm governance, and talent management. State Street Global Advisors has six senior committees reporting to the EMG, including the Environmental, Social, and Governance ("ESG") Committee (the "ESG Committee").
	The State Street Global Advisors ESG Committee is responsible for overseeing our ESG/sustainable investing practices and proxy voting framework and philosophy, which may include climate and other environmental-related factors. The State Street Global Advisors ESG Committee reports to the EMG no less than annually on any material matters that could pose strategic risk to our business and to the State Street Global Advisors Risk Committee, where appropriate, on material risks.
	Climate risk management has been a central theme of our environmental stewardship activities for nearly a decade. We endorsed the TCFD framework in 2017 and expect companies to provide public disclosures in accordance with the four pillars of the TCFD framework: Governance, Strategy, Risk Management, and Metrics and Targets. Through our engagements with portfolio companies, we seek to understand how company boards and management teams are effectively overseeing climate-related risks and opportunities the company has deemed to be material to its business or operations.

TCFD Recommendation Pillar	Key Points
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	
Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	**Risks** With regard to risks to our clients' portfolios, we have identified various climate risk drivers that may lead to decreased asset values, higher volatility over time, and increased risk, including investment risk, liquidity risk, and counterparty risk. With respect to our business, climate risk may also drive operational/technology risk, strategic risk, and compliance/conduct risk — which may be most impactful — while acute weather events may also pose a risk to our physical assets. **Opportunities** We may experience increased demand for our climate investment strategies. We also may experience increased demand for our proprietary sustainability analytics, including those related to climate, from investors, financial intermediaries, and other asset owners.
Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	As an index manager, we are long-term shareholders on behalf of our clients, and we are focused on delivering the index exposure to those clients. Climate change risks and opportunities may impact the management of our clients' portfolios in active strategies, as well as our risk management and Asset Stewardship program. Climate change risks and opportunities also can influence our work as a business, including increasing client demand for climate-related strategies and climate analytics, and the potential for State Street to reduce the environmental impact of our operations.
Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Most of our index funds (and the majority of our AUM) are currently focused on strategies designed to track broad market exposure. For clients that request it, we may help our clients understand the nature of climate risk embedded in the indices in which they are invested through climate investment education and analytics. In 2023, we conducted a firmwide climate-related scenario analysis exercise across all asset classes, where data was available, to understand potential climate-related transition risk under different scenarios. The scenario analysis was performed using three scenarios developed by the Network for Greening the Financial System (NGFS). While climate scenario analysis is not predictive of the future, we see this as a valuable tool to help us understand the potential implications of possible climate pathways. Although this exercise was conducted at an entity-level, we have expanded our data capabilities to perform scenario analysis at a fund level on an ad hoc basis.
Describe how risks and opportunities are factored into relevant products or investment strategies and describe related transition impact.*	We offer a variety of capabilities for clients who wish to pursue a climate focus, including positively and negatively screened portfolios and thematic funds. Our customizable framework allows us to create client portfolios that target reductions in current and future carbon emissions, increase exposure to green revenues, and increase resiliency to the risks posed by climate change. We also provide both bespoke and standardized reporting to clients in certain strategies to help them understand TCFD-aligned and climate-focused risks and opportunities in their portfolios. For more information on our investment strategies, please refer to our Sustainable Investing Capabilities Statement. For investors who seek to align with the Paris Agreement and achieve net zero emissions, we have developed climate-aware investment solutions. Investors may seek to adjust their asset allocation based on the climate-related risk and return profile of their investment. Investors can choose from a variety of climate-related metrics and data that can be integrated in the portfolio construction process and that are utilized in such investment strategies.
Risk Management Disclose how the organization identifies, assesses, and manages climate-related risks.	
Describe the organization's processes for identifying and assessing climate-related risks.	**As a manager of client assets** • Engaging with portfolio companies about the climate-related risks material to their business • Integrating available sustainability data and climate data (e.g., carbon intensity) in risk monitoring and reporting processes, as appropriate **As a business** • Conducting an annual State Street Global Advisors Climate Risk Workshop with the purpose of identifying key drivers of climate risks that could impact the firm's financial performance, operations, and franchise value, and leveraging State Street's regulatory change management programs to identify climate-related changes to the regulatory environment that may impact State Street Global Advisors
Describe the organization's processes for managing climate-related risks.	The identification, assessment, monitoring, mitigation, and reporting of risks are essential to our financial performance and successful management of our businesses. Accordingly, the scope of our business requires that we consider these risks as part of a comprehensive and well-integrated risk management function. These risks, if not effectively managed, can result in losses to us as well as erosion of our capital and damage to our reputation. Our approach to risk management, including Board and senior management oversight and a system of policies, procedures, limits, risk measurement, monitoring, and internal controls, allows for an assessment of risks within a framework for evaluating opportunities for the prudent use of capital that appropriately balances risk and return. Our objective is to optimize our returns while operating at a prudent level of risk. In support of this objective, we have instituted a risk appetite framework that aligns our business strategy and financial objectives with the level of risk that we are willing to incur.

TCFD Recommendation Pillar	Key Points
Describe engagement activity with investee companies to encourage better disclosure and practices related to climate-related risks in order to improve data availability and asset managers' ability to assess climate-related risks.*	We have held more than 1,300 climate-related engagements since 2014. Through our conversations, we aim to understand how companies are overseeing and managing climate-related risks and opportunities and incorporating them into relevant strategic and financial planning processes. In 2023, we had over 160 engagements with portfolio companies on climate-related risk management and have been successful in driving improved disclosure in line with our guidance. We conduct engagement campaigns that focus on a particular topic or a theme in order to enhance our understanding of an emerging area or to establish and encourage alignment with the disclosure expectations in our Global Proxy Voting and Engagement Policy (the "Policy"). In 2022, we began conducting engagements with companies across sectors in our portfolio, including high emitters, to discuss their climate transition plans and share feedback on improving disclosure in line with our disclosure assessment criteria. In 2023, we continued this ongoing engagement campaign, focusing on high-emitters in the energy, utilities, and materials sectors. In 2023 we also completed a series of engagements with global companies across the upstream, midstream, and downstream oil and gas value chain to better understand efforts related to managing methane emissions. Through our engagements, we aimed to better understand each company's strategy and encourage best practice disclosure.
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	The State Street Board Risk Committee oversees the risk management components, including climate risk, of State Street's sustainability obligations, initiatives, and activities. In addition, we have established a State Street Global Advisors ESG Committee that is responsible for ESG/sustainable investing oversight and reports to the EMG and the State Street Global Advisors Risk Committee, where appropriate, on material risks. State Street Global Advisors' Risk Management team is part of State Street's Enterprise Risk Management organization, and we draw on enterprise risk processes and frameworks to aim for consistency in our approach. State Street manages climate-related risk considerations in alignment with its Enterprise Risk Management Framework, incorporating climate-related risk issues and impacts into its management of existing risk types, financial and non-financial. State Street's Climate Risk Management Program uses a variety of existing processes and tools and dedicated approaches to focus on identification, measurement, and management of climate-related risk drivers to help us understand our vulnerabilities and address them, where material.
Describe how material climate-related risks are identified, assessed, and managed for each product or investment strategy.*	Where appropriate and consistent with a fund or strategy's disclosed objectives: • Climate risks are identified and assessed throughout the product and investment strategy lifecycles, through investment research and analysis, portfolio construction and management, and investment risk management. • We aim to review all investment strategies at least annually, across a range of metrics including sustainability characteristics, through our Investment Strategy Review Committee (a sub-committee of the Investment Committee). • We perform climate data due diligence and comparative analysis to identify best in class metrics, indicators, and data points to drive climate-focused solutions.
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	We currently use third parties to source business- and product-related data to help assess climate-related risks and opportunities for our clients, where relevant. The metrics we leverage include carbon emissions data (absolute emissions, carbon intensity, carbon footprint, weighted average carbon intensity [WACI]), fossil fuel reserves, brown and green revenues, implied temperature rise, and carbon risk ratings. We continue to evaluate the effectiveness of various metrics. Going forward, as transparency and reliability around climate data improves, we will assess and may report on additional climate metrics.
Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Our Parent's Scope 1 and Scope 2 emissions are tracked and reported as part of their TCFD disclosures. In 2023, our Parent company also expanded data collection and disclosure to more Scope 3 categories associated with its own capital. State Street Global Advisors does not report Scope 3 emissions related to its assets under management (Category 15). Many aspects of the calculation and attribution of GHG emissions disclosures are in development, and there continues to be significant practical challenges. There is an inherent timing lag in the availability of Scope 3 data, given the interdependence on Scopes 1 and 2, inconsistent Scope 3 estimation measurements, as well as wider technical issues such as "double counting" by asset owners and asset managers. Consensus around Scope 3 reporting parameters is still emerging, and further industry work should be done to determine the value and feasibility of calculating and disclosing Scope 3 GHG emissions on assets under management for the benefit of investors.
Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	**As a manager of client assets** In connection with State Street Global Advisors' participation in the Net Zero Asset Managers initiative, we have set interim targets for emissions reductions that apply to a portion (approximately 14% as of 31 December 2021) of our assets under management (our "Net Zero Target Assets"). While we believe attention to climate risk is relevant to long-term value, our targets will only be achieved if net zero is important to our clients and they instruct us to achieve that objective in the portfolios that we manage for them. In this regard, it should be noted that we will not depart from client mandates to achieve the objective of net zero, we will not force any client to embrace net zero, and we will not sell companies in any index because those companies do not achieve net zero targets or objectives. As an index manager, we are long-term shareholders on behalf of our clients, and we are focused on delivering the index exposure to those clients. **As a business** Because we co-locate with our Parent company, our operational targets (e.g., emissions and energy use) are available in the State Street Corporation TCFD report.

TCFD Recommendation Pillar	Key Points
Asset managers should describe the extent to which their assets under management and products and investment strategies, where relevant, are aligned with a well below 2°C scenario, using whichever approach or metrics best suit their organizational context or capabilities.*	As noted above, as an index manager, we are long-term shareholders on behalf of our clients, and we are focused on delivering the index exposure to those clients. Where relevant to certain strategies, we provide scenario alignment analysis and TCFD-aligned carbon metrics, transition risk analysis, and physical risk analysis to clients on a regular basis. We also have the capability to provide customized reports upon request (e.g., assessments of progress against annual weighted average carbon intensity [WACI] reduction targets).
Asset managers should disclose GHG emissions for their AUM and WACI for each product or investment strategy, where data and methodologies allow. Asset managers should consider providing other carbon footprinting metrics they believe are useful for decision-making.*	As noted above, as an index manager, we are long-term shareholders on behalf of our clients, and we are focused on delivering the index exposure to those clients. Where relevant to certain strategies, we provide emissions and WACI analysis to certain clients. We are in the process of developing the reporting mechanisms to disclose GHG emissions more comprehensively. In 2023, we prepared to update our Sustainable Climate strategies to include additional forward-looking climate metrics like implied temperature rise, climate value at risk and carbon risk ratings. We aim to implement these changes in due course.

* Reflects recommendations that are included in the Supplemental Guidance for Asset Managers, which incorporates updates to the guidance for the financial sector released by the TCFD in 2021.

Governance

State Street is committed to effective corporate governance in order to fulfill our responsibilities to our clients, investors, and other key stakeholders. State Street has established a governance structure that actively considers climate and other environmental factors.

Board and Parent Company Oversight

State Street Global Advisors sits within State Street's wider corporate governance framework, led by State Street's Board of Directors. State Street's Board of Directors takes guidance from the Corporate Governance Guidelines and the Standard of Conduct for Directors on the role of the Board and its responsibilities, functions, and conduct expectations. The Board provides ongoing oversight of State Street Global Advisors' near- and long- term business strategies. State Street's Board of Directors has several committees to assist in carrying out its responsibilities. The mandates of these committees are set out in the charters below:

- Examining and Audit Committee
- Executive Committee
- Human Resources Committee
- Nominating and Corporate Governance Committee
- Risk Committee
- Technology and Operations Committee

More information on the current State Street Board committee composition can be found here.

State Street Global Advisors' CEO and CRO annually report to the Board's Risk Committee and provide monthly reporting, including on risk management components of climate-related matters, as appropriate. Additionally, State Street Global Advisors' Asset Stewardship team typically reports twice annually on its activities, including climate-related activities, to the Board's Nominating and Corporate Governance Committee to share insights about best practices. These semi-annual updates to the Board cover ongoing stewardship efforts, corporate engagements, and proxy voting, including actions taken around sustainability and climate change-related topics.

State Street's Sustainability Governance

In 2018, the State Street Board of Directors assumed responsibility for oversight of sustainability obligations, initiatives, and strategies, which was modified in 2024 to include matters related to sustainability and impact.

In 2021, State Street formalized its governance over sustainability initiatives and activities by specifically including oversight responsibilities in the charters of each of the following Board committees: Examining and Audit, Human Resources, Nominating and Corporate Governance, Risk, and Technology and Operations. During this process, the Risk Committee of the Board added responsibility for the risk management components (including climate risk) of State Street's sustainability obligations, initiatives, and activities to its mandate. Effective in 2024, each of the committee charters reference oversight of sustainability and impact related obligations, initiatives and activities within their respective remit.

Governance for State Street's Climate Risk Management Program is provided by the Management Risk and Capital Committee (MRAC), which is the senior management decision-making body for risk and capital issues. The Risk Committee of the Board has primary responsibility for Board oversight for the management of climate-related risks. The MRAC and Board oversight are guided by State Street's Climate Risk Policy, which sets forth State Street's approach to managing the impact of climate-related risks on the company, and supported by a dedicated climate risk working group, which provides oversight for the development of climate risk identification, assessment, and management frameworks and embedded responsibilities across other business units and risk and corporate functional areas.

Sustainability and Impact Committee

In 2023, State Street strengthened its governance around the management of sustainability-related issues by establishing a Sustainability and Impact Committee, as a sub-committee of the Executive Committee, co-chaired by the Chief Risk Officer and Chief Administrative Officer. With scheduled meetings on a quarterly basis, the committee aligns with State Street's governance framework, with a specific purpose to ensure:

- Visibility of sustainability matters of enterprise-wide significance, including sustainability-related policy matters
- Timely consideration and debate on enterprise-wide issues relating to sustainability
- Board and management committee visibility of sustainability issues

The membership is comprised of a number of State Street's most senior leaders, and the work of the committee is supported by two sub-committees: an ESG Bond Issuance Committee and an Environmental Sustainability Committee.

Sustainability and Impact Operating Group

At an operational level, a dedicated Sustainability and Impact Operating Group ensures issues of corporate-wide significance are appropriately identified, debated and, where necessary, escalated. While specific issues may be managed by individual business areas, functions or legal entities, the enterprise-wide nature of sustainability requires coordination firm-wide. Meeting monthly, the group coordinates the cross-functional initiatives, receiving updates from dedicated working groups, for example those related to Scope 3 emissions, developments in corporate sustainability reporting, and cross-cutting elements of climate.

This integrated approach to the governance of ESG/sustainability-related issues complements and strengthens the overall governance structure of State Street Corporation.

Legal Entity Reporting

State Street Global Advisors operates across the world from legal entities in North America, Europe, the Middle East, and the Asia Pacific region. We have legal entities that are structured independently and may have additional reporting and oversight responsibilities related to environmental issues, including climate change. Within our global framework, certain legal entities are responsible for overseeing applicable climate risk-related requirements and may have additional reporting and oversight responsibilities related to environmental issues, including climate change.[4]

State Street Global Advisors Management Oversight

Figure 2
Governance Structure

Executive Management Group (EMG)

Consultative body responsible for strategic planning, business goal and financial tracking, overall firm governance and talent management.

↑ Reporting

Risk Committee

Responsible for ensuring the alignment of strategy, risk appetite and risk management standards (corporate-wide).

Subcommittees

- Liquidity and Derivatives Oversight

↑ Escalation of Material Risk Breaches

Reporting

Environmental, Social & Governance (ESG) Committee

Responsible for overseeing the firm's ESG and proxy voting framework and philosophy.

Global Investment Committee

Responsible for the firm's investment philosophy and processes, investment strategies, approach to new markets and instruments and relationships with counterparties.

Subcommittees

- Technical
- Trade Management Oversight
- Investment Strategy Review
- Securities Lending

Global Product Committee

Responsible for the creation of products based on the firm's investment strategies.

Subcommittees

- EMEA Product
- APAC Product
- Sub-Advisory Oversight

Global Fiduciary & Conduct Committee

Responsible for addressing fiduciary and business conduct matters across the firm and oversight of the firm's collective investment funds.

Subcommittees

- EMEA Fiduciary & Conduct
- Independent Fiduciary
- Class Action Litigation
- Sales Practices

Global Operations & Compliance Committee

Responsible for the firm's operating infrastructure & compliance functions.

Subcommittees

- North American Valuation
- EMEA Valuation
- APAC Valuation
- Global Operational Risk
- Business Technology Investment

Source: State Street Global Advisors, 15 April 2024.

Executive Management Group

State Street Global Advisors' firm governance structure is designed to support effective and efficient decision-making and provide oversight of its business functions. The structure consists of the Executive Management Group (EMG), which comprises the firm's most senior leadership and serves as a consultative body for the benefit of the firm's President and CEO. The EMG is responsible for overall firm governance and oversees the activities of State Street Global Advisors' six senior committees:

- Risk Committee
- ESG Committee
- Global Investment Committee
- Global Product Committee
- Global Fiduciary and Conduct Committee
- Global Operations and Compliance Committee

In 2023, our EMG engaged in strategic planning related to our priorities, including ESG/sustainability, and laid out a multi-year plan to invest in our ESG/sustainable investing capabilities, including those focused on climate. These investments include further building out our ESG/sustainability teams (across operations, investments, product, stewardship, and distribution) and developing supporting capabilities (e.g., data and reporting). These investments include acquiring additional ESG/climate index and data licenses and developing our product range. Through these strategic investments, we are working to position our business to respond to client demand for investment solutions. On a quarterly basis, executives oversee State Street Global Advisors' ESG/sustainability strategy as a business, including climate-related risks and opportunities.

State Street Global Advisors Risk Committee

Our Risk Committee is responsible for ensuring the alignment of business strategy, risk appetite, and risk management standards. If the ESG Committee (or other senior committee) notes any material risk matters, the committee will escalate the matter to the State Street Global Advisors Risk Committee.

State Street Global Advisors ESG Committee

To strengthen governance of stewardship and sustainable investing, we established an ESG Committee in 2022. The ESG Committee is responsible for overseeing the firm's sustainable investing and proxy voting framework and philosophy. The ESG Committee is chaired by Karen Wong, our Global Head of Sustainable Investing and Stewardship. The ESG Committee's purpose is to:

- Oversee matters relating to ESG and sustainable investing, business practices, and public policy including any requirements relating to the firm in its capacity as an asset manager (collectively "ESG Matters")
- Oversee the Asset Stewardship team proxy voting and issuer engagements on behalf of all the firm's discretionary portfolios (collectively, "Asset Stewardship Matters") and to review and approve the policies, guidelines and guidance that pertain to Asset Stewardship Matters (the "Voting and Engagement Policy")

The ESG Committee chair is appointed by the CEO of the firm, and the members of the ESG Committee are appointed by the ESG Committee chair. The ESG Committee is composed of senior staff across our Investment, Product, Client-facing, Legal, Compliance, Risk Management, and Operations teams. In 2023, the ESG Committee reviewed a number of climate-related topics, including relevant regulatory updates, disclosure expectations for portfolio companies, and net zero interim targets.

Other senior committees may also oversee matters related to ESG, climate, and/or sustainability, where appropriate to their remits.

Asset Stewardship

Our Asset Stewardship program is centered on the pursuit of long-term value for our clients' portfolios through voting at shareholder meetings and engaging with the companies in which we invest on behalf of our clients.

We believe our portfolio companies must have effective oversight and governance of opportunities and risks that are material to their businesses and that they should disclose how they are overseeing such risks and opportunities to investors. This belief is fundamental to our Asset Stewardship approach.

We believe engagement is a meaningful tool that we can use in a manner that enables us to protect and promote the long-term economic value of our clients' investments. Through engagement, we aim to build long-term relationships with our portfolio companies to address a broad range of topics relating to the promotion of long-term shareholder value creation.

Our Asset Stewardship program has three principles:

- **Effective board oversight** Good governance underpins our asset stewardship activities. We trust the boards of portfolio companies and believe they are well-equipped to oversee proper implementation of their businesses' strategies. We also believe boards are responsible for minimizing the risks that can adversely affect performance of the company, including those related to environmental and social issues. Thus, we hold boards accountable through our engagement and voting activities. We do not seek to micromanage companies and boards.

- **Disclosure** We promote the disclosure of information on how companies are managing the risks and opportunities related to topics that are deemed material to their business. We will hold boards accountable if we believe they do not sufficiently disclose information that can be deemed important to an investor's decision-making process.

- **Shareholder protection** A robust governance process starts by ensuring minority shareholders' long-term interests are protected against detrimental actions by controlling shareholders. We believe it is in the best interest of shareholders for companies to have appropriate shareholder rights and accountability mechanisms in place, including participation in annual meetings and the right to call special meetings and votes.

These principles serve as the foundation for our engagement and voting activities. Our Asset Stewardship team is centralized under our Global Head of Sustainable Investing and Stewardship, who oversees its activity and reports to our Global Chief Investment Officer.

Figure 3
Asset Stewardship Activities

Engagement with portfolio companies	**Voting**	**Thought leadership**	**Interaction with investment teams**
Supporting standard-setting	**Public speaking**	**Engagement with clients**	**Monitoring engagement success**

Source: State Street Global Advisors, 31 December 2023.

The team has developed our Global Proxy Voting and Engagement Policy, which outlines our engagement approach. We conduct issuer-specific engagements to discuss the principles in the Policy, including sustainability-related risks and opportunities. We review and update the Policy annually as part of our regular review process. In addition, we assess emerging risks and issues affecting the companies in which we invest on behalf of our clients.

Further information on our Asset Stewardship and Sustainable Investing teams can be found in the Risk Management section of this report and in our 2023 Asset Stewardship Report.

Enhancing Oversight

The firm periodically reviews its governance structure and may make adjustments from time to time. We aim to continue enhancing our internal governance approach for effective oversight of climate-related risks and opportunities related to our business.

Strategy

With respect to our clients, our perspective on climate-related risks is rooted in our duty to invest assets in clients' best interests and to seek value over the long term.

With respect to management of our clients' portfolios in active strategies, we believe that incorporating sustainability factors, including climate, into our investment risk framework can have a positive impact on long-term value creation. This belief influences our engagement and voting activity and the design of certain investment processes. Additionally, with respect to managing our business strategy, we integrate climate considerations where we see risks and opportunities, such as to develop investment choices to meet client demand.

State Street considers climate-related opportunities and risks across two sources of risk based on common definitions established by the global network of central bankers and supervisors: Physical Risk and Transition Risk.

Physical Risks are related to the physical impacts from climate change and include:

- Acute Risks, which are primarily event-driven, such as the increased severity or frequency of weather events including hurricanes, other storms, floods, and heat and cold waves, among others

- Chronic Risks, which are driven by longer-term shifts in climate patterns, such as changes in sea levels, sustained higher temperatures, and changing precipitation patterns, among others

Transition Risks are related to the process to adjust to a net-zero emission economy and can include:

- Changes in market sentiment or preferences, including for investors and consumers

- Technological changes

- Policy and regulatory changes

Climate-Related Opportunities for Our Clients

We believe that the efforts of the public and private sectors to significantly reduce greenhouse gas emissions may present opportunities for our clients over the short-, medium-, and long-term time horizons.

Figure 4
Potential Climate-Related Opportunities for Clients

Climate-Related Area of Opportunity	Description	Climate-Related Opportunity Driver Type
Product Choice	Clients have access to a broad range of investment solutions to help them meet their climate- and low-carbon-related objectives.	Transition and Physical
Risk/Return Profile	Clients invested in climate and low-carbon investment strategies may benefit from improved risk and return performance in certain scenarios.	Transition and Physical

Range of Investment Solutions

To support clients in achieving their sustainable investing objectives, including with respect to climate, we look to innovate and develop new investment solutions. As of 31 December 2023, State Street Global Advisors managed 146 sustainable investing funds.[5]

Climate and Low-Carbon Investment Strategies

For investors seeking to align their portfolios with their climate ambitions and/or align with climate-aware industry frameworks, we offer investment products and solutions across both equities and fixed income that are designed to meet specific climate-related objectives.

Across investment strategies with specifically disclosed climate attributes, we may consider mitigation and/or adaptation as important investing dimensions. Mitigation refers to avoiding and reducing emissions in a portfolio or among portfolio companies. Adaptation denotes a company's ability to minimize its exposure to the actual or expected physical, economic, and regulatory impacts of climate change.

Our sustainable investing solutions vary depending on the type of strategy provided to our clients, but generally fall into one of three broad categories, each of which may include a focus on climate:

1. **Negative Screening** A "Negative Screen" (also known as an exclusionary screen) is a screen incorporated into the investment strategy utilized for the management of a portfolio that results in the exclusion from the portfolio of securities of issuers that fail to satisfy certain sustainability criteria. Negative Screens include but are not limited to State Street Global Advisors Point of View (POV) screens, norms-based screens, Socially Responsible Investing (SRI) screens, and screens provided by clients or other third-parties.

2. **Positive Screening** A "Positive Screen" is a screen incorporated into the investment strategy utilized for the management of a portfolio that intentionally includes securities of issuers identified as having positive sustainability characteristics relative to the issuer's industry or sector peers. Positive Screens include but are not limited to targeting an overall improvement of a portfolio's sustainability profile as compared to a benchmark or stated investment guideline, measured in sustainability scores or metrics, or investing only in issuers within an industry or sector that score higher within that industry or sector than the issuers' peers.

3 **Third Party ESG/Sustainable Investing Index Investment Strategies** An index is deemed to be a "Third Party ESG/Sustainable Investing Index" if the index methodology incorporates sustainability factors or characteristics that are utilized by the third-party index provider to determine which securities and/or how much in weight are included as index constituents.

With respect to management of our clients' portfolios in active strategies, we believe sustainability factors should be considered alongside traditional investment factors when making investment decisions to develop a more complete picture of portfolio companies' future financial trajectory and business risks. We believe this practice allows issuers to more fully demonstrate their value proposition to investors and the market to appropriately value an issuer's securities. Sustainability factors could cause either a negative or positive impact on a variety of financial metrics. In addition, we recognize that some sustainability-related risks and opportunities are likely to materialize over longer term time horizons. Finally, the degree to which these factors may drive future business results may or may not be well recognized in the market. Therefore, we believe it is important to assess these factors as part of a comprehensive assessment of the value of an investment, as applicable, depending on the investment strategy. However, unless specifically disclosed to investors in a strategy, sustainability factors are not material to the way the investment strategy is managed and are not necessarily determinative of investment selection.

Green Bond Investing

Green bonds enable capital-raising and investment for new and existing projects with potential environmental benefits, such as funds to build a solar power plant. Green bonds are part of a family of labeled bonds and are defined and qualified by a clear use-of-proceeds pledge by the borrower to allocate the funds borrowed to projects that meet specific environmental objectives, including climate change mitigation and adaptation. To ensure transparency and credibility in the green bond market, several voluntary standards have been established, including the International Capital Market Association (ICMA) Green Bond Principles (GBP) and the Climate Bond Initiative (CBI) Green Bond Taxonomy. These standards facilitate the ability for investors to identify and provide funding to bond issuers based on their future intentions relating to environmental objectives, rather than on their historical record on sustainability. Like conventional bonds, green bonds are long-term fixed income debt instruments. They generally have the same seniority, recourse, and rating as an issuer's conventional bonds. The main difference between green and conventional bonds is that the proceeds of a green bond are earmarked for climate- and environment-related projects.

State Street Global Advisors established its first US Green Bond strategy in 2012. This was subsequently followed by the launch of a Global Green Bond Index Strategy in 2015. State Street Global Advisors also manages a number of portfolios that either have an indexed green bond-only investment objective (i.e., they target 100% investment in green bonds) or a targeted allocation as part of the overall investment objectives of a mandate (i.e., strategies that target a certain percentage or multiple vs. the reference benchmark).

State Street Global Advisors is a member of ICMA and the CBI and is involved in various working groups as part of an initiative to enhance global standards, transparency, and consistency in the labeled bond market.

Reporting

In addition to building out our investment capabilities, we have enhanced our monthly performance reports and fund factsheets for certain clients' equity investment portfolios to include, as relevant, a summary of our sustainability-related R-Factor™ scores at the portfolio level, a climate profile section illustrating climate-related exposures with key metrics, and a stewardship profile with engagement and voting data. We may also provide, as relevant, a range of additional reports to support regional regulatory requirements, including climate metrics and asset stewardship data.

Climate-Related Risks to Our Clients

We have identified certain climate-related risks as potentially impactful to our clients' portfolios, where consistent with the disclosed investment strategy, and dedicated teams are responsible for managing these risks.

Figure 5
Potential Climate-Related Risks to Clients

Risk Category	Description	Climate-Related Risk Driver Type
Investment Risk	Investment in securities with high exposure to extreme weather events, disruptive technology, or transitioning economy	Transition and Physical
Liquidity Risk	Rapid movement in prices due to climate risks leading to decreased liquidity and stranding of carbon intensive assets	Transition and Physical
Counterparty Risk	Impact on credit spreads due to increased expenditure required to transition away from carbon intensive assets and impact of acute physical climate risk events	Transition and Physical

Investment Risk Team

The Investment Risk team is responsible for independently monitoring investment risk exposures to ensure that risk contributions are consistent with return expectations and to highlight intentional and unintentional exposures. Attention is focused on where we have risk, how much risk we have, and whether it is consistent with our views and client objectives.

Liquidity Risk Team

The Liquidity Risk Management team is responsible for independently monitoring and reporting on asset and funding redemption liquidity risk to ensure appropriate levels of liquidity across portfolios and to ensure adherence to regulatory liquidity requirements. Furthermore, periodic table-top exercises are held with the business to ensure awareness of roles and responsibilities and preparedness of the business and its operations through simulated stress events.

Counterparty Risk Team

The Counterparty Risk Management (CRM) team strives to prudently manage counterparty risk while enabling traders to achieve best execution for clients. The team's objective is to be comprehensive, capturing all elements that materially impact counterparty creditworthiness including asset quality, earnings, funding and liquidity, capitalization, and management.

Factoring Climate-Related Opportunities and Risks Into Investment Strategies

Whether our clients are focused on risk management, responding to new regulations, making investments that align with their values, or seeking to enhance long-term performance, our sustainable investing capabilities can support clients in achieving their sustainability objectives and investment goals. We offer a wide spectrum of investment strategies from which our clients may choose, including sustainability-focused portfolios and separately managed accounts.

Below are two examples of State Street Global Advisors sustainable investing strategies.

Figure 6
Example Sustainable Climate Bond Strategy

Strategy Name	**Sustainable Climate US Corporate Bond Strategy**
Investment Objective	Seeks to generate capital growth over the long term through investment in the fixed-rate, investment grade, USD-denominated corporate bond market
Benchmark	Bloomberg U.S. Credit Corp Index
Investment Strategy	Tracks the performance of the index as closely as possible using a Stratified Sampling approach, while screening out securities based on an assessment of their adherence to certain sustainability criteria
Approach	The Strategy: • Seeks to provide higher exposure (relative to the respective index) to bonds issued by companies that are mitigating and adapting to climate risk, by constructing a portfolio of bonds based on the following climate related characteristics: carbon intensity (emissions scaled by revenue), fossil fuel reserves, allocation to green and climate aligned bonds, brown revenues, and ratings for climate adaptation • Screens out companies that do not meet international norms in relation to environmental protection, human rights, labor standards, anti-corruption, controversial weapons, and tobacco; consequently, the Strategy will only hold a subset of the securities included in the index • Benefits from state-of-the art indexing portfolio management model which balances diversification, turnover, and tracking error objectives

Figure 7
Example Global Climate Transition Equity Strategy

Strategy Name	**Global Climate Transition Strategy**
Investment Objective	Aims to generate long-term capital growth through investment in companies that lead their respective industries in climate change transition, preparedness, and progress
Benchmark	MSCI ACWI Index
Investment Strategy	Invests in equity securities of large- and mid-cap companies in developed and emerging markets that the team believes are well positioned to transition to a net zero economy, with durable growth prospects at a reasonable valuation
Approach	After screening the investment universe, analysts perform detailed company due diligence including quantitative forecasts of financial metrics and a rigorous assessment of quality, which includes a climate transition evaluation, scored on proprietary metrics. Portfolio construction is based on choosing the companies that we believe are well positioned to transition to a net zero economy and offer the best combination of quality, durable growth, and valuation, while managing portfolio risk. The investment approach is disciplined and takes a long-term perspective.

Customizing Low-Carbon/Climate-Thematic Solutions

State Street Global Advisors has extensive experience working with institutional investors seeking to integrate sustainability objectives into their investments. Below, we share two examples of our sustainability-focused customized separately managed accounts for institutional clients. These examples are for illustrative purposes only.

Figure 8

Example Sustainability-Focused Separately Managed Account (SMA): Indexed Equities

SMA Description	Custom Equity Low Carbon & ESG
Background	A pension fund approached State Street Global Advisors with a desire to better align their domestic and international equity investment strategy with climate-conscious objectives while adhering to stringent climate-related targets and tracking error limits to the strategic benchmark.
Solution Overview	Our team collaborated closely with the client to develop an approach that aligned with their objectives using our proprietary data analytics and a negative screening framework, known as the Point of View (POV), to identify and exclude high carbon companies and other companies based on additional themes from the investment universe. 1. Data analysis and scenario modeling: Using our proprietary data and optimization models, we conducted in-depth scenario analysis to explore various trade-offs between tacking error and the desired sustainability objectives. These scenarios were crucial in helping the client make informed decisions regarding their investment strategy. 2. Tailored allocation: Following extensive deliberation and scenario testing, the client opted for a nuanced allocation strategy: a. Australian equities: targeting a 20–25% reduction in carbon intensity reduction with minimal tracking error b. MSCI World ex-Australia equities: aiming for a relatively substantial 55% reduction in carbon intensity while maintaining a comparable performance tracking error to the strategic benchmark 3. Screening and exclusions: In addition to carbon intensity reduction, the client desired to complement their screen with our insights to avoid certain exclusive themes in their investment holdings. Our POV screen tool was seamlessly integrated with the client's directed exclusion list, ensuring a comprehensive approach to their sustainable investing objectives.
Outcome	Implemented in Q2 2023, the pension fund successfully aligned its investment strategy with climate goals while upholding financial performance objectives.

Figure 9

Example Sustainability-Focused Separately Managed Account (SMA): Indexed Fixed Income

SMA Description	Custom Third-Party Climate Bond Index
Background	The client wished to switch their Emerging Market Corporate Bond strategy from an active to an indexed mandate while also incorporating a customized version of the State Street Sustainable Climate Corporate Bond Framework into the index construction.
Solution Overview	Using our proprietary data and optimization models we conducted in-depth analysis to explore data coverage and the various trade-offs between tracking error and the desired sustainability objectives. These scenarios were crucial in helping the client make informed decisions regarding their investment strategy. Once the preferred framework was identified, the index provider (JP Morgan) incorporated these into an index which could be systematically supplied to the client and the portfolio manager. Starting with the JP Morgan CEMBI Broad Diversified benchmark as the parent index, this was customized based on the following parameters: 1. Climate: 50% carbon reduction verses the benchmark 2. Controversy and business involvement screening: On a quarterly basis, the client updated their exclusion list, which included Controversial Weapons, Civilian Firearms, Oil Sands, Shale Gas, Thermal Coal, and Tobacco 3. Country policy: Avoid investments in companies and governments which breach the investor's country policy, with a minimum threshold of share capital for state-owned companies
Outcome	The strategy launched in June 2023 with €650 million.

Transition Impact

A key question that remains is how portfolio decarbonization strategies can help if an investor's overarching goal is to influence real economy decarbonization. This is a difficult question to answer, and there are gaps in existing research. A recent study[6] found some support for the theory that portfolio decarbonization impacts real economy decarbonization, but more evidence is needed. Portfolio decarbonization approaches, in general, alter capital allocations by reducing investments in high carbon-intensive names and increasing investments in low carbon-intensive names. Such approaches can be implemented in a sector neutral fashion, so that sector allocations remain similar to the parent index.

We note that most public equity and fixed income investments are made in secondary markets. Therefore, changing portfolio allocations only transfers the ownership of those emissions from one investor to another, without having a discernible impact on real economy emissions reductions in our view. That said, if such portfolio allocation changes are made by a critical mass of investors, the stock and bond prices of high carbon intensive companies may be depressed, potentially leading to changes in the cost of capital for those companies.

We observe, for most investors who wish to pursue a net zero strategy, the path is likely to incorporate, to varying degrees, aspects of engagement and capital allocation or portfolio decarbonization strategies.[7] Our net zero targets are designed to impact our clients that have chosen to pursue a net zero strategy.

Climate-Related Opportunities for Our Business and Strategy

Climate change opportunities and risks can influence our work as a business, including increasing demand for climate-related strategies and climate analytics, and the potential for us to reduce our operational impact.

Below is a snapshot of climate-related opportunities we have identified as potentially impactful to our business.

Figure 10
Potential Climate-Related Opportunities for Our Business and Strategy

Area of Opportunity	Description	Climate-Related Opportunity Driver Type
Demand for Products	We may experience increased demand for our climate investment strategies and funds	Transition and Physical
Demand for Analytics	We may experience increased demand for our proprietary sustainability analytics, including those related to climate, from investors, financial intermediaries, and other asset owners	Transition and Physical
Minimize Our Operational Impact	State Street Corporation may reduce its footprint while enhancing resiliency of operations	Transition and Physical

Demand for Climate-Related Products

As investor interest in climate-related risks and opportunities evolves, State Street Global Advisors may experience increased demand for our climate investment strategies. In response, we are broadening our toolkit to provide investment strategies that help clients identify and maximize climate-related opportunities while addressing and managing climate risks in their portfolios. As investors continue to request such solutions, we aim to continue developing our product pipeline to meet market demand and to better serve clients' needs and preferences.

In 2023, we executed against an ambitious strategic agenda. We undertook targeted strategic actions aimed at expanding our capabilities and continued to strengthen our position as a leader in innovative and cost-effective solutions underpinned by valuable investment insights to help investors navigate challenging environments and achieve desired long-term investment. These efforts supported clients in achieving their investing objectives, including with respect to sustainability and climate. State Street Global Advisors had approximately $650 billion in sustainable investing assets under management (AUM), which comprise about 16% of our assets under management, as of 31 December 2023.[8]

Our Use of Climate Analytics

We also may experience increased demand for our proprietary sustainability analytics, including those related to climate, from investors, financial intermediaries, and other asset owners. Our data and analytics can help clients assess relevant climate-related risks and opportunities to develop an approach that is aligned with their objectives. This includes performing in-depth analyses conducted primarily with third-party data and proprietary optimization models. We also continue to make investments in ESG/climate index and data licenses in response to client demand.

Minimizing Our Operational Impact

At the core of the State Street climate strategy is the responsible management of its operational environmental impacts. Specifically, it is the operation of State Street's global network of offices, bank branches, and data centers that contributes to its direct environmental footprint. To minimize this impact, State Street is committed to allocating capital toward sustainable building design, improving energy performance of existing buildings, and purchasing carbon credits to complement its decarbonization efforts.

State Street has set a 1.5° Celsius-aligned absolute GHG reduction target for 2030 to mitigate emissions from its operations. Beyond reducing its footprint, State Street also invests in projects that help reduce global emissions and address its residual scope 1, 2, and 3 emissions on an annual basis. This has allowed State Street to report net zero residual emissions through its portfolio of high-quality carbon credits and energy attribute certificates.

For details of methodology and complete inventory of operational greenhouse gas emissions, refer to the State Street 2023 Sustainability Report.

Climate-Related Risks to Our Business and Strategy

We have identified climate-related risks as potentially impactful to our business.

Figure 11
Potential Climate-Related Risks to Our Business and Strategy

Risk Category	Description	Climate-Related Risk Driver Type
Strategic Risk	Loss of market share due to rapidly evolving (and possibly divergent) client demands for sustainability and climate-related products. Possible misalignment related to sustainability across business lines and geographies	Transition
Compliance/ Conduct Risk	Risks arising from emerging and varied regulatory and industry expectations. Increased scrutiny and perceived greenwashing or greenhushing related to activity and/or disclosure	Transition
Operational/ Technology Risk	Disruption of State Street Global Advisors' operations and/or services from third-party providers due to acute physical climate risk events	Transition

To address these and other related risks, we have incorporated climate considerations into our business strategy and planning in the following ways (note, the list below is not exhaustive):

- **Enhancing our product offerings** We aim to continue developing our product pipeline to meet market demand by providing investment strategies and analytics that help clients identify and maximize climate-related opportunities and achieve their sustainability objectives and investment goals.

- **Performing scenario analysis** In 2023, we conducted a firmwide climate-related scenario analysis exercise across all asset classes, where data was available, to attempt to understand potential climate-related transition risk under different scenarios. The scenario analysis was performed using three scenarios developed by the Network for Greening the Financial System (NGFS). These scenarios included orderly, disorderly, and hot house world, and we leveraged MSCI's dataset to perform this analysis. The scenarios were selected based on data availability and relevancy, as we expect transition risk of climate to likely manifest itself sooner than physical risk. Though climate scenario analysis is not predictive of the future, we see this as a tool to help us understand the implications of possible climate pathways. While we conducted the scenario analysis and assessed the resilience of our overall investment strategy as represented by our total entity book of business, where data was available, it is important to note that, as an index manager, we do not make investment decisions based on the results of this analysis. We conducted this exercise at the entity-level, and we also have expanded our data capabilities to perform ad hoc scenario analyses at the fund level.

- **Meeting regulatory requirements** State Street Global Advisors monitors the regulatory environment and has put programs in place to address regulatory change and implementation, including climate-related requirements. Additionally, we have established content creation guidelines and implemented a content compliance review process for all materials, inclusive of climate-related content, to mitigate regulatory and reputational risk arising from our activity and/or disclosure, including the risk of greenwashing. We also have a business team dedicated to advancing the firm's efforts to meet regulatory requirements and other reporting obligations related to sustainable investing and stewardship matters, including supporting the firm's sustainable investing governance framework and sustainable investing policies, procedures, and controls.

- **Protecting the resiliency of our physical infrastructure** State Street Global Advisors co-locates with State Street, and State Street's business depends upon maintaining a robust and resilient physical infrastructure across global locations that can handle the impacts of a changing climate. State Street incorporates potential climate impacts in business continuity planning and considers longer-term climate patterns in its location strategy and operational resiliency planning.

- **Reducing emissions** In 2017, State Street voluntarily set science-based reduction targets for its own operating carbon emissions. In 2020, State Street surpassed its 2025 target of a 30 percent reduction and set a new goal of a 27.5 percent reduction by 2030 as measured against the 2019 baseline year. In 2022, State Street strengthened its science-based Scope 1 and 2 emissions reduction targets to align with a 1.5-degree scenario from its prior well-below 2-degree level. As of 2023, State Street has reduced its global Scope 1 and 2 carbon footprints by 31% (relative to its 2019 base year level). These reductions are largely the result of right sizing State Street's real estate portfolio to accommodate a hybrid workforce, selecting new building locations which are more energy efficient, and the realization of energy savings from prior projects. These programs include the optimization of State Street's IT hardware and installation of onsite electricity generation (e.g., solar array). Beyond reducing its own footprint, State Street also invests in projects that help reduce global emissions and address its residual scope 1, 2, and 3 emissions on an annual basis.

Risk Management

A robust approach to risk management is critical to enable effective delivery of our products and services. We believe climate change may be a financial risk to our clients and to our business. Therefore, we recognize the importance of integrating climate risk into our risk management framework. State Street Global Advisors' Risk Management team is part of State Street's Enterprise Risk Management organization, and we draw on enterprise risk processes and frameworks to aim for consistency in our approach.

State Street manages climate-related risk considerations in alignment with its Enterprise Risk Management Framework, incorporating climate-related risk issues and impacts into its management of existing risk types, financial and non-financial. State Street's Climate Risk Management Program uses a variety of existing processes and tools and dedicated approaches to focus on identification, measurement, and management of climate-related risk drivers to help us understand our vulnerabilities and address them, where material.

State Street's established process for risk identification, the Material Risk Identification (MRI) process, utilizes a bottom-up approach to identify the firm's most significant risk exposures, focused on the risks that can have a material impact on the firm.

The identification of climate-related risks is integrated into the MRI process, with climate-related risks considered as drivers for our material risks. Climate risk drivers can impact these risks, including financial risks such as credit risk or liquidity risk, and non-financial risks such as operational risk or compliance risk, through the two transmission channels described previously, Physical Risk and Transition Risk.

In 2023, State Street enhanced its climate risk identification process, conducting a global survey focused on refreshing its inventory of climate-related risk drivers and on developing a methodology to quantify the likelihood and impact of those risk drivers on State Street. Survey results indicate that State Street's operations and the construction of its balance sheet limit direct impacts to State Street from climate-related risk drivers. However, given the heightened global regulatory focus on climate-related risks, the potential for related impacts may be more notable across conduct and compliance risks.

Identifying and Assessing Climate-Related Risks to Clients

State Street Global Advisors' business model informs our approach to risk identification and assessment. As a large manager of index assets, we have historically thought of risk management in indexed products in the context of tracking error to the index. While that remains true, we have also enhanced our processes, where appropriate, to establish sustainability and climate reporting on key climate metrics for certain strategies.

The Investment Risk Management team is responsible for independently monitoring investment risk exposures to ensure that risk exposure levels and contributions are consistent with portfolio-specific guidelines and return expectations. The team also highlights intentional and unintentional exposures, inclusive of climate-related risks for strategies with a climate objective.

Managing Climate-Related Risks to Clients

For risks in client portfolios, our investment teams are the primary risk owners responsible for evaluating environment- and climate-related risks and opportunities if relevant to the investment portfolio.

The Investment Strategy Review Committee (a sub-committee of the Investment Committee) seeks to ensure continued efficacy of investment strategies, consistent with client expectations and with consistent outcomes across portfolios and through time. The Investment Strategy Review Committee aims to review comprehensively all aspects of the firm's investment strategies (including majority owned affiliate strategies) with specific emphasis on risk, return, ESG/sustainability characteristics when relevant to the strategy, and performance evaluation.

In addition, we aim to manage risks to our clients through:

- **Participating in industry organizations** We participate in industry organizations and believe there are particular benefits to our clients and the broader capital markets with respect to standards-setting, improving disclosures, contributing to research and knowledge-sharing, and supporting diverse market participation.

- **Joining the Net Zero Asset Managers initiative** As part of this initiative, State Street Global Advisors set interim targets for emissions reductions that apply to a portion (approximately 14% as of 31 December 2021) of our assets under management. We describe our targets on our website, and a discussion of these targets is included in the Metrics and Targets section of this report.

- **Publishing thought leadership** We publish thought leadership to help inform our portfolio companies and educate broader market participants about our perspectives on sustainability issues, including climate risks and opportunities. Sample topics are highlighted in figure 12 below.

- **Engaging in climate stewardship** Climate risk management has been a theme of our Asset Stewardship program at State Street Global Advisors for several years. Details are provided in the next section.

Figure 12 **Climate-Related Thought Leadership Example Topics**

Integration of Climate in the Investment Process	A Case For: An Active Fundamental Approach to Climate Transition Understanding the Complexities of Scope 3 Carbon Emissions Data Climate Scenarios: An Introduction Climate Scenarios: Unpacking the 1.5°C Pathways EU Climate Benchmarks: Paris Aligned or Climate Transition?
General Sustainable Investing Insights (State Street Global Advisors)	Peeling Back the Onion: Understanding What Goes into an ESG Rating ESG Data Governance and Oversight in Asset Management: A Primer
General Sustainable Investing Insights (State Street Corporation)	Carbon Assets: Category Growth, Strategies and What Comes Next The Future of ESG: Supplying the Demand

Asset Stewardship

As part of our emphasis on risks and opportunities that may impact value, we rely on the boards of directors of the companies in which we invest to oversee their firms' strategies. Thus, our Asset Stewardship program is focused on engagement with these portfolio companies to promote robust governance, including board oversight, and disclosures. Using our Global Proxy Voting and Engagement Policy as a foundation, we vote and engage with companies in a manner that we believe will most likely protect and promote the long-term economic value of client investments. Further, we continue to engage with standards-setters, regulators, and policy makers to enhance public disclosures.

Engagement

Engagement is an important part of our Asset Stewardship program. We assess a range of risk drivers, including those relating to environmental factors, and seek to understand how companies address these risks and maintain sound governance and oversight practices. We focus our environmental stewardship activities broadly across two categories: climate risk management and nature-related risk management. We view our engagements with portfolio companies as ongoing conversations, and the dialogue is intended to be interactive and evidence-based.

Once we have identified a company for engagement, we actively seek direct dialogue with the board and management. In framing discussions regarding climate, we find that the recommendations of the TCFD provide an effective framework for disclosure of climate-related risks and opportunities, and we believe all companies should provide public disclosures in accordance with the four pillars of the TCFD framework: Governance, Strategy, Risk Management, and Metrics and Targets. In 2023, we had over 160 engagements with portfolio companies on climate-related risk management. Our engagements focus on understanding how companies are both managing climate-related risks and addressing climate as an opportunity. We have held more than 1,300 climate-related engagements since 2014 and have been successful in driving improved disclosure in line with our guidance.

Figure 13 **Environmental Engagement Data**

Environmental Engagements in 2023	200
Climate-focused Engagements in 2023	162
Climate-focused Engagements since 2014	1,300+

Source: State Street Global Advisors, 31 December 2023.

Engagement Campaigns

In the off-season, we conduct engagement campaigns that focus on a particular topic or a theme, in order to enhance our understanding of an emerging area or to establish and encourage alignment with our expectations. Below is a summary of environmental engagement campaigns conducted between 2022–2023.

Figure 14
2022–2023 Environmental Engagement Campaign Data

Engagement Campaign	Number of Companies	GICS Sector(s) Engaged
Methane Emissions in the Oil and Gas Value Chain	26	Energy
Climate Transition Plan Disclosure	125	Energy, Utilities, Materials, Industrials, Communication Services, Consumer Discretionary, Consumer Staples, Information Technology
Financing Deforestation Risk	22	Financials
Social Risks Related to Climate Transition Plans	24	Consumer Discretionary, Energy, Industrials, Materials, Utilities
Managing Risks in the Plastics and Packaging Value Chain	20	Materials, Consumer Discretionary

Source: State Street Global Advisors, 31 December 2023.

Climate Transition Plan Disclosure

We seek to understand and assess how companies are effectively managing the climate-related risks and opportunities that are material to their business, including those presented by the transition to a lower-carbon economy. In 2022, we began conducting engagements with companies that have adopted climate transition plans[9] to discuss guidance, to share feedback, and to better understand the risks and opportunities companies are facing. We continued this multi-year campaign in 2023, focusing on carbon-intensive industries,[10] including those within the Energy, Utilities, and Materials sectors. We conducted 90 climate transition plan disclosure engagements with companies in 2022 and 85 in 2023. As an outcome of these engagements, a number of companies have improved disclosure in line with our feedback.

Figure 15
Climate-Related Risk Management Engagement Highlight

Company	Applied Materials, Inc.
Geography and Industry	United States SICS Sector: Technology and Communications
Key Topics	Climate Risk Management — Climate Transition Plan Disclosure
Asset Class	Equity
Background	We engaged Applied Materials, Inc. in 2022 and 2023 to better understand the company's approach to managing relevant risks and opportunities related to several environmental topics including climate, water management, waste management, and materials sourcing. We discussed the company's progress on enhancing disclosure in line with the TCFD and its ongoing efforts to develop its climate transition plan, which was published in 2023.
Activity	During our engagements, we gained insight on Applied Materials' approach to climate-related target setting and efforts related to energy management, customer and supply chain engagement, and innovation in product efficiency. We discussed the company's progress on quantifying its Scope 3 emissions inventory and the challenges and opportunities with reducing energy consumption for semiconductor products. We shared feedback and opportunities to enhance disclosure in line with our guidance, including disclosure about the company's decarbonization strategy to achieve its stated climate-related targets.
Outcome	In 2023, Applied Materials, Inc. updated its climate-related targets and enhanced disclosure on its strategy to achieve these goals. This includes a roadmap outlining the main levers the company is pursuing toward its targets and the estimated contribution of each lever toward overall emissions reductions. The company also received validation for its science-based 2030 Scope 1, 2, and 3 emissions targets and disclosed progress on supply chain emissions management, product efficiency, and other efforts.

Methane Emissions in the Oil and Gas Value Chain

We conducted engagements with 26 global companies across the upstream, midstream, and downstream oil and gas value chain between 2022–23. Our goal was to better understand each company's strategy to manage methane-related risks and opportunities as well as to encourage best practice disclosure on topics such as methane detection and monitoring, methane emissions abatement efforts, and methane measurement and quantification. We completed this campaign in 2023.

As of March 2024, over half of the companies engaged have improved methane-related disclosure in line with our feedback. This includes disclosure on the following topics: use of advanced detection and measurement technologies, plans to report in line with leading methane emissions measurement-based reporting frameworks, any planned capital investment toward addressing methane emissions, and related targets, if any. Learnings from this engagement campaign informed the development of our methane disclosure assessment criteria, found in our Global Proxy Voting and Engagement Policy, and our approach to future engagement on the topic.

Figure 16
Climate-Related Risk Management Engagement Highlight

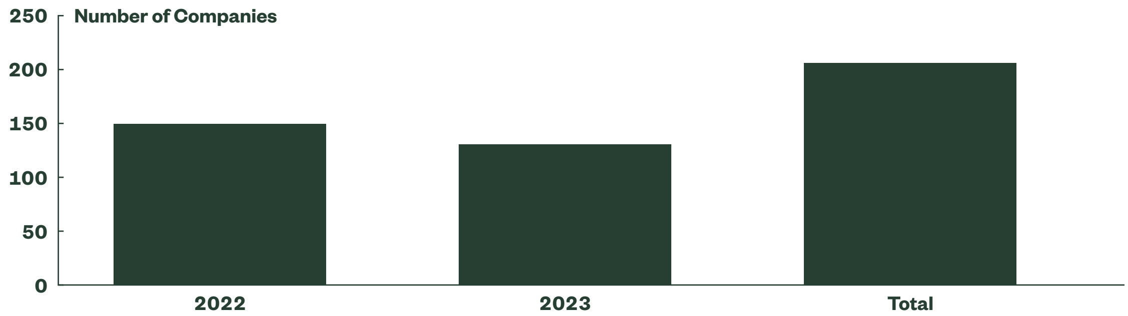
Company	Marathon Petroleum Corporation
Geography and Industry	North America SICS Sector: Extractive & Minerals Processing
Key Topics	Climate Risk Management — Methane Emissions
Asset Class	Equity
Key Resolutions	N/A
Background	In 2022, we initiated an engagement campaign with global companies across the oil and gas value chain focused on understanding efforts to manage methane emissions and related regulatory, reputational, market, financial, and other risks and opportunities. We discussed disclosures and best practices on topics including methane emissions detection, monitoring, measurement, and reporting. Methane emissions management is an ongoing topic of discussion in our climate engagements with companies in the Energy sector.
Activity	We conducted several engagements with Marathon Petroleum Corporation ("Marathon Petroleum") between 2022 and 2023. Our discussion on climate-related topics focused on understanding the company's climate-related targets, decarbonization strategy, and approach to managing potential social risks and opportunities related to this strategy. We also discussed the company's approach to managing methane emissions and shared feedback on related disclosures.
Outcome	In Q4 2023, we held an engagement to discuss the company's latest climate-related disclosure published in 2023. Marathon Petroleum enhanced disclosure on the company's efforts to reduce methane emissions, such as controlling emissions from reciprocating compressors, reporting expected methane emissions reductions from each action through 2030, and estimating planned capital expenditures to achieve these reductions. Further, the company enhanced disclosure on pursuing a more measurement-based methane emissions inventory and discussed findings from enhanced monitoring within the midstream sector, including higher emissions from methane slip.

Voting

Director Elections

We have a longstanding commitment to enhancing decision-useful disclosure on climate risk management and have encouraged our portfolio companies to report in accordance with the recommendations of the TCFD since we first endorsed the framework in 2017. In 2022, we began taking voting action against directors of companies in the S&P 500, S&P/TSX Composite, FTSE 350, STOXX 600, and ASX 100 indices where the companies fail to provide sufficient disclosure regarding climate-related risks and opportunities in accordance with the TCFD. In 2023, we expanded the universe of companies subject to this voting guideline to include the ASX 200, TOPIX 100, Hang Seng, and Straits Times indices. We voted against directors at over 130 companies in 2023 for lack of sufficient climate-related disclosure or oversight. While we expanded the company universe, the number of votes against directors decreased in 2023, primarily due to improved disclosure in line with the TCFD framework.

Figure 17
Votes Against Directors for Lack of Sufficient Disclosure in Line with TCFD per Our Voting Policy



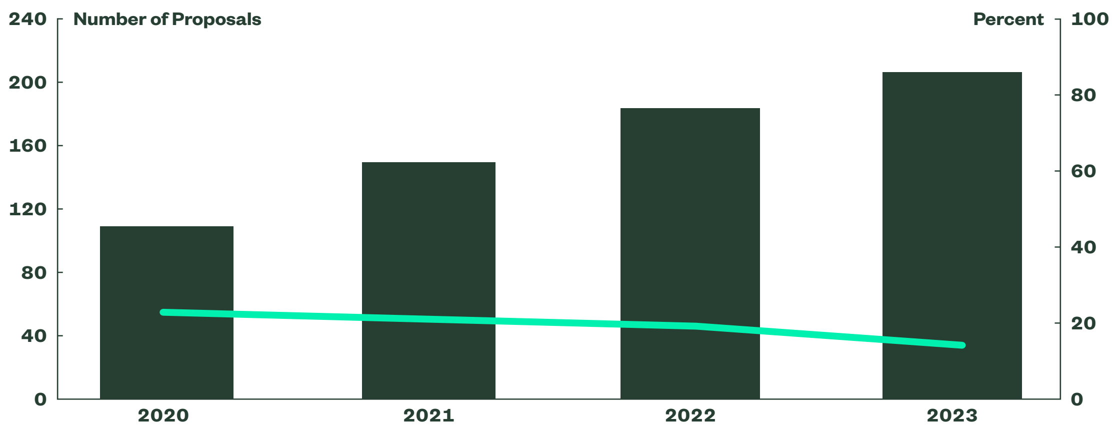
Source: State Street Global Advisors, 31 December 2023.

Support for Global Environmental Shareholder Proposals

We continue to support proposals that we believe are aligned with long-term shareholder value. We take a case-by-case approach and may vote for a shareholder proposal we believe will lead to increased alignment with our expectations for a company's disclosure and oversight practices.

Figure 18
Support for Global Environmental Shareholder Proposals Over Time

Number of Proposals
% Supported by State Street Global Advisors



Source: State Street Global Advisors, 31 December 2023.[11]

We voted in favor of 14% of environmental shareholder proposals in 2023.[12] As shown in the figure 18 above, our support for environmental shareholder proposals decreased in the last two years. The decline in our support is attributed to several factors. There has been an increase in the number of environmental proposals; for example, we voted on 206 environmental proposals in 2023, compared to 183 in 2022. With this increase, the proposal topics, nature of proposals filed, and targeting of proposals have all evolved. In recent years, there has been an evolution of proposals that use increasingly prescriptive language. Proposal language has moved from disclosure-focused to requesting changes to corporate practices or policies. For example, there has been an increase in proposals calling for the phasing out of a product or business line within a defined timeframe, increasing or decreasing investment in certain products, and/or decommissioning assets, which we generally do not support.

Figure 19
Voting on Environmental Shareholder Proposals in 2023

206	14%
Proposals Voted	Proposals Supported

Source: State Street Global Advisors, 31 December 2023.[13]

In 2023, proposals continued to be filed with companies where disclosures have improved. Proposals of the same climate topics were refiled with the same companies year over year, despite many companies providing enhanced disclosure and responsiveness to our engagements. Where we viewed enhanced disclosures to be in line with our expectations, we did not support these proposals. Further, an increasing number of proposals this season targeted emerging topics that are not yet well defined or for which consistent market expectations or frameworks are not yet widely available. Further information can be found in in our Environmental Stewardship Highlights, Q2 2023 Stewardship Activity Report and in our vote bulletins.

As our climate stewardship efforts evolve, we remain committed to thoughtful engagement and maintaining our disciplined approach to proxy voting.

To better understand how these engagements and our proxy voting lead to successful outcomes, please refer to our 2023 Asset Stewardship Report.

Identifying and Assessing Climate-Related Risks to Our Business

We view climate change as an intersecting risk that may pose implications to our business. In alignment with our Parent company, we view risk identification as an iterative activity that includes inputs across the three lines of defense. We include climate risk as a strategic risk in our Material Risk Identification process — which utilizes a bottom-up approach to identify our most significant risk exposures, irrespective of their likelihood or frequency — and consider climate risk-related drivers through their impact to our broader inventory of material risks.

In June 2023, we conducted a second iteration of our annual State Street Global Advisors Climate Risk Workshop with the purpose of identifying key drivers of climate risks that could impact the firm's financial performance, operations, and franchise value. The workshop included participation from various teams across State Street Global Advisors and featured discussions on topics including but not limited to the firm's strategy, the evolving regulatory landscape, and industry best practices related to climate and sustainability risk. Subsequently, the risk team updated the climate risk drivers mapping to the existing risk taxonomy.

In line with industry best practices, we leveraged three Network for Greening the Financial System (NGFS) scenarios, given the increasing adoption by global regulators and the granularity of data provided across a range of plausible scenarios. These scenarios are orderly, disorderly, and hot house world, and we leveraged MSCI's dataset to perform the analysis. We believe this analysis, although not predictive, is helpful for us to better understand the implications of different climate possibilities. While we conducted the scenario analysis and assessed the resilience of our overall investment strategy as represented by our total entity book of business, where data was available, it is important to note that, as an index manager, we do not make investment decisions based on the results of this analysis.

Managing Climate-Related Risks to Our Business

State Street Global Advisors' risk function is closely aligned with State Street Corporation's regarding how we identify, assess, and monitor risk. Responsibility for risk oversight is allocated to ensure decisions are made at an appropriate level and are subject to robust and effective review and challenge. As such, we leverage the three lines of defense model to manage material risks, which may include climate-related risks, to the organization.

Embedded in our risk management are the governance committees that oversee and manage our risks. Our committees and teams across the three lines of defense play important roles in identifying and managing our climate risks.

Governance

The Risk Committee of the State Street Board has responsibility for the material risk management components (including climate risk) of State Street's sustainability obligations, initiatives, and activities.

Within State Street Global Advisors, our ESG Committee is composed of stakeholders across the first and second lines of defense. The committee is responsible for overseeing the firm's sustainable investing and proxy voting framework and philosophy.

The ESG Committee is one of State Street Global Advisors' five senior-most committees that escalates risks directly to the State Street Global Advisors Risk Committee, where necessary.

The teams comprising our second line of defense — Risk and Compliance — establish and monitor adherence to the risk and control framework and create an additional layer of independence.

Risk Management, Compliance, and Audit

Risk Management Framework

In the normal course of State Street's business activities, we are exposed to a variety of risks, some inherent in the financial services industry, and others that are specific to State Street's business activities. The State Street risk management framework focuses on material risks. Many of these risks, as well as certain factors underlying each of them, could affect State Street's businesses and its consolidated financial statements, and are discussed in detail under "Risk Factors" in State Street's Form 10-K.

The identification, assessment, monitoring, mitigation, and reporting of risks are essential to State Street's financial performance and successful management of its businesses. Accordingly, the scope of State Street's business requires that it consider these risks as part of a comprehensive and well-integrated risk management function. These risks, if not effectively managed, can result in losses to State Street as well as erosion of its capital and damage to its reputation. State Street's approach to risk management, including Board and senior management oversight and a system of policies, procedures, limits, risk measurement, monitoring, and internal controls, allows for an assessment of risks within a framework for evaluating opportunities for the prudent use of capital that appropriately balances risk and return. State Street's objective is to optimize its returns while operating at a prudent level of risk. In support of this objective, State Street has instituted a risk appetite framework that aligns its business strategy and financial objectives with the level of risk that State Street is willing to incur.

Compliance Programs

State Street Global Advisors' Compliance team is part of State Street's Compliance organization, and we draw on enterprise programs and frameworks to aim for consistency in our approach. To address compliance risk[14] and the evolving regulatory landscape, the State Street

Compliance Risk Management Policy and supporting framework (“Compliance Program”) sets forth enterprise-wide standards for identifying, assessing, monitoring, and reporting on compliance risk.

The State Street Compliance Program applies a risk-based approach to ensure both management and control function resources are directed to those risks, regulations, and regulators that represent the greatest exposure and therefore require the greatest level of engagement. State Street’s regulatory change management programs are designed to identify changes to the regulatory environment that impact State Street’s legal entities, the products and services they provide, and the operations they conduct. Management and control functions work in concert to ensure that relevance and applicability to State Street are understood and that internal processes, procedures, and controls are designed to address changes in the external regulatory environment.

Corporate Audit

The third line of defense team — Corporate Audit — provides the Board and management with independent and objective assessments of the design and operating effectiveness of State Street’s system of internal controls. Corporate Audit’s assessments cover the integrity of the Company’s financial statements and reports, compliance with laws, regulations, and corporate policies, and the effective management of risks faced by State Street in executing on its strategic and tactical operating plans. Corporate Audit applies a systematic, disciplined approach to evaluate and recommend improvements to the design and operating effectiveness of State Street’s global risk management, control, and governance processes.

Climate Change Risks to Our Physical Assets

Physical climate risk, especially acute weather events, may increase in the years ahead. This may impact both our physical assets and the services we provide to our clients around the world. We are committed to mitigating the effects to clients from any service interruptions, including those related to climate change.

To understand our operational vulnerabilities to climate factors, State Street, including State Street Global Advisors, regularly evaluates the exposure of our operations to changes in the physical environment. This includes assessing the frequency and severity of major weather events that may impact our operations, induce damage, disrupt our supply chain, or potentially hinder our ability to provide products or services.

We also assess longer-term risks of climate change on our operational resiliency by mapping our key locations, infrastructure, and third parties against the critical services we provide for clients.

Our business continuity and disaster recovery programs are key to ensuring that we can absorb disruptions should they occur. These programs set standards that require recovery strategies to be put in place and regularly tested. These standards, by way of example, include consideration of attributes of the locations of our global workforce and related public infrastructure, and climate and geopolitical factors that could impact their work.

This continuous threat assessment and mitigating actions, coupled with regular incident and crisis management testing and exercises help to ensure that operational resilience is continuously improved, responsive to changing inherent risks, and embedded as a key tenet of our daily operations. For more information, please refer to State Street Corporation’s TCFD report.

Metrics and Targets

Metrics and targets play a critical role in assessing climate-related risks for our clients. We see climate metrics as useful inputs for understanding and disclosing climate-related risks, including in the TCFD-aligned reporting we provide to clients.

Metrics for Assessing Climate-Related Risks and Opportunities for Clients

We use a range of climate metrics across data providers in different applications as a part of our client reporting on certain investment strategies. These metrics include industry standards, such as carbon emissions data (absolute emissions, carbon intensity, carbon footprint, WACI), fossil fuel reserves, brown and green revenues, implied temperature rise, and carbon risk ratings. We continue to evaluate the effectiveness of various metrics. Going forward, as transparency and reliability around climate data improves, we will assess and may report on additional climate metrics.

Some metrics, such as carbon intensity and carbon footprint, have robust coverage and more well-defined methodologies. However, some other metrics lack transparency, and the methodologies require additional validation before we can further integrate them into our business. For example, we have extensively reviewed various Climate Value-at-Risk (CVaR) providers and are comparing the various approaches and continue to evaluate their effectiveness and robustness. Such CVaR datasets are well-suited for the purpose of understanding the impact of climate-related risks and opportunities under different climate scenarios — depending on the data vendor, these scenarios may include those published by the International Energy Agency, the Intergovernmental Panel on Climate Change, or the Network for Greening the Financial System. We are exploring the use of such datasets for various purposes including incorporation in investment strategies, client reporting, and risk management.

Sample Analysis

As an example of analytics that we can offer our clients, below is a selection of climate-related data points that may help clients assess climate-related risks and opportunities.

In this analysis, we provide figures for commonly used listed equity indices like the MSCI All Country World Index, the MSCI World Index, and the MSCI Emerging Markets Index. For ease of comparison, we assume that $1 billion is invested in each as of 31 December 2023. In the following sections, we provide analysis covering (i) carbon emissions metrics, (ii) CVaR, and (iii) portfolio alignment. These analyses describe portfolios using different lenses:

- Carbon emissions-related analytics may be used by investors to understand the current emissions exposure of their portfolios. Investors may use the Implied Temperature Rise[15] (ITR) statistics to obtain an indication of the potential trajectory of future emissions associated with their portfolio.
- CVaR may be used by investors to understand quantitative risk and return implications under different future climate scenarios and key climate-related risk and opportunity pillars.
- Portfolio alignment metrics may be used by investors more generally to understand a company's climate-related commitments and management efforts to help achieve their targets.

Additionally, some investors may also use these analytics — or others which are not presented here — to make investment decisions based on potential risk and return considerations.

Carbon Emission Metrics

One lens we can provide to clients is information about the current emissions exposure of their portfolios.

Figure 20
Carbon Emissions and Implied Temperature Rise

Data Point	Units	MSCI ACWI	MSCI World	MSCI EM
Financed Emissions (Scope 1+2)	Tonnes of CO_2-eq	54,038.6	42,153.5	155,526.2
Financed Emissions (Scope 3)	Tonnes of CO_2-eq	346,177.2	321,965.1	552,814.5
Financed Emissions Intensity (Scope 1+2)	Tonnes of CO_2-eq per million $ invested	54.0	42.2	155.5
Financed Emissions Intensity (Scope 3)	Tonnes of CO_2-eq per million $ invested	346.2	322.0	552.8
Wtd. Avg. Carbon Intensity (Scope 1+2)	Tonnes of CO_2-eq per million $ revenues	128.8	105.6	326.9
Wtd. Avg. Carbon Intensity (Scope 3)	Tonnes of CO_2-eq per million $ revenues	706.2	678.9	938.5
Implied Temperature Rise	Degrees Celsius	2.4	2.3	2.9

Source: State Street Global Advisors, MSCI, FactSet, 31 December 2023. Financed emissions are attributed using enterprise value including cash, as recommended by the PCAF Standard.

Climate Value-at-Risk

A second lens we can provide to clients is portfolio-level data related to climate scenario analysis, making use of scenarios developed by the Network for Greening the Financial System (NGFS) and company-level CVaR data provided by MSCI based on selected NGFS scenarios.

The NGFS scenarios were developed to provide a common starting point for analyzing climate risks to the economy and financial system. It is important to note that the NGFS scenarios are not forecasts; instead, they aim to explore the bookends of plausible futures (neither the most probable, nor the most desirable) for financial risk assessment.

To reflect the uncertainty inherent to modelling climate-related macroeconomic and financial risks, the NGFS scenarios use different models and explore a wide range of scenarios across regions and sectors. Scenarios differ markedly in their physical and transition impacts, with significant uncertainty in the size of the estimates and variation across regions.

The six NGFS scenarios cover the following dimensions:

- **Orderly** scenarios assume climate policies are introduced early and become gradually more stringent. Both physical and transition risks are relatively subdued.

- **Disorderly** scenarios explore higher transition risk due to policies being delayed or divergent across countries and sectors. For example, carbon prices are typically higher for a given temperature outcome.

- **Hot house world** scenarios assume that some climate policies are implemented in some jurisdictions, but global efforts are insufficient to halt significant global warming. The scenarios result in severe physical risk including irreversible impacts like sea-level rise.

See the NGFS Scenario Portal for more details on NGFS climate scenarios.

Below, we focus on the following three scenarios to cover different temperature outcomes and policy implementations, utilizing outputs based on the REMIND-MAgPIE model:[16] The selection of three particular scenarios is purely for illustrative purposes; it is possible to choose any other NGFS scenarios for this purpose as well.

- **Orderly transition scenario** Net Zero 2050 (1.5°C). This scenario limits global warming to 1.5°C through stringent climate policies and innovation, reaching global net zero CO_2 emissions around 2050. Some jurisdictions such as the US, EU, UK, Canada, Australia, and Japan reach net zero for all GHGs.

- **Disorderly transition scenario** Delayed transition (2°C). Delayed transition assumes annual emissions do not decrease until 2030. Strong policies are needed to limit warming to below 2°C. Negative emissions are limited.

- **Hot house world scenario** Nationally Determined Contributions (NDCs, 3°C). The NDC scenario includes all nationally pledged targets even if not yet backed up by implemented effective policies.

These scenarios are based on complex modelling of the Earth's physical and socioeconomic systems, and it is considered challenging to convert these into quantitative return implications for portfolios. For this purpose, we utilize MSCI's proprietary CVaR dataset that converts these climate scenarios into company-level impacts at a 15-year time horizon (expressed as a percentage of a company's market value). It should be noted that MSCI CVaR data is based on several assumptions made by MSCI. Scenario analysis methodologies continue to evolve, and data presented here is subject to change in the future. As described above, climate scenario analysis is provided to highlight potential climate risks and their underlying drivers; however, there is considerable uncertainty related to these estimates, and specific risks vary under different scenarios.

Based on the MSCI CVaR dataset, we provide quantitative examples of three key pillars: *policy risks*, which generally correlate to transition risks, *technology opportunities*, which generally correlate to transition opportunities, and *physical risk*. It should be noted that while the figures presented here cover several pillars of potential climate-related risks, this may not represent a complete picture of all such risks.

The figures in the below table represent each index's CVaR under three different NGFS scenarios and three underlying CVaR pillars, all expressed as a % of index value.

Figure 21
Scenario Analysis

Scenario	Metric	MSCI ACWI	MSCI World	MSCI EM
1.5°C NGFS Orderly	Climate Value at Risk — Policy Risk	-8.0%	-7.5%	-11.9%
1.5°C NGFS Orderly	Climate Value at Risk — Technology Opportunities	0.8	0.8	1.0
1.5°C NGFS Orderly	Climate Value at Risk — Physical Risk	-1.6	-1.2	-4.6
2°C NGFS Disorderly	Climate Value at Risk — Policy Risk	-5.6	-5.4	-7.6
2°C NGFS Disorderly	Climate Value at Risk — Technology Opportunities	0.4	0.4	0.5
2°C NGFS Disorderly	Climate Value at Risk — Physical Risk	-2.3	-1.8	-6.5
3°C NGFS NDC	Climate Value at Risk — Policy Risk	-1.6	-1.6	-2.0
3°C NGFS NDC	Climate Value at Risk — Technology Opportunities	0.2	0.2	0.2
3°C NGFS NDC	Climate Value at Risk — Physical Risk	-3.2	-2.6	-8.6

Source: State Street Global Advisors, MSCI, FactSet, 31 December 2023.

Portfolio Alignment
A third lens that can be useful to investors utilizes the Paris Aligned Investment Initiative Net Zero Investment Framework's (PAII NZIF) recommended methodology for measuring portfolio alignment. That methodology involves assessing companies against six criteria (ambition, targets, emissions performance, disclosure, decarbonization strategy, and capital allocation alignment), and classifying companies into categories depending on which criteria are satisfied. Using data from third-party provider ISS-ESG, we developed a best-efforts methodology to assess the alignment of underlying assets.

We consider a company to be "aligned with net zero" if they meet the following five criteria based on the PAII NZIF:

(i) A long term 2050 goal consistent with achieving global net zero

(ii) Short- and medium-term emissions reduction targets (scope 1, 2, and material scope 3)

(iii) Current emissions intensity performance relative to targets (scope 1, 2, and material scope 3)

(iv) Disclosure of scope 1, 2, and material scope 3 emissions

(v) A quantified plan setting out the measures that will be deployed to deliver GHG targets, proportions of revenues that are green and, where relevant, increases in green revenues; an assessment of capital allocation is not conducted at this stage due to data limitations

A company is considered "aligning to net zero" if they meet criteria (i), (ii), (iv), and (v). A company is considered "committed to net zero" if they meet criteria (i). If a company does not meet criteria (i), it is considered "not aligned."

In the figure below, we provide data for the three indices as before, showing the weight of the index that falls into each category.

Figure 22
Percent of Index Weight in Each Alignment Category

	Data Point	MSCI ACWI (%)	MSCI World (%)	MSCI EM (%)
As a Percent of Portfolio Weight	Aligned to net zero	14.6	16.2	1.1
	Aligning to net zero	2.3	2.4	0.8
	Committed to net zero	38.1	39.8	23.6
	Not aligned	43.7	41.3	64.9
	Data not available	1.3	0.3	9.6

Source: State Street Global Advisors, MSCI, ISS-ESG, FactSet, 31 December 2023.

Targets for Assessing Climate-Related Risks and Opportunities for Clients

We have set interim targets for emissions reductions that apply to a portion (approximately 14% as of 31 December 2021) of our assets under management (our "Net Zero Target Assets").[17] While we believe attention to climate risk is relevant to long-term value, our targets will only be achieved if net zero is important to our clients and they instruct us to achieve that objective in the portfolios that we manage for them. In this regard, it should be noted that we will not depart from client mandates to achieve the objective of net zero, we will not force any client to embrace net zero, and we will not sell companies in any index because those companies do not achieve net zero targets or objectives. As an index manager, we are long-term shareholders on behalf of our clients, and we are focused on delivering the index exposure to those clients.

We have set the following three targets that apply only to our Net Zero Target Assets:

- **By 2040,** we expect all of our client assets in our Net Zero Target Assets (14% of our total portfolio assets as of 31 December 2021) invested in carbon-intensive industries[18] to be (i) achieving net[19] or (ii) aligned to net zero,[20] and we will work with those clients to help them develop net zero guidelines and implement them into their portfolios.

- **By 2030,** we expect 90% of financed emissions[21] in carbon-intensive industries in the client portfolios in our Net Zero Target Assets (14% of our total portfolio as of 31 December 2021) to be coming from companies: (i) achieving net zero, (ii) aligned to net zero, or (iii) subject to engagement and stewardship actions.

- **By 2030,** we expect financed Scope 1+2 carbon emissions intensity[22] in each client portfolio in our Net Zero Target Assets (14% of our total portfolio assets as of 31 December 2021) to be reduced by 50% relative to a 2019 baseline.

Metrics and Targets Related to Our Business

Scope 1, 2, and 3 Emissions Disclosures

Our Parent's Scope 1 and Scope 2 emissions are tracked and reported as part of their TCFD disclosures. In 2023, our Parent company also expanded data collection and disclosure to more Scope 3 categories associated with its own capital in line with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. State Street Global Advisors does not report Scope 3 emissions related to its assets under management (Category 15). Many aspects of the calculation and attribution of GHG emissions disclosures are in development, and there continue to be significant practical challenges. There is an inherent timing lag in the availability of Scope 3 data, given the interdependence on Scopes 1 and 2, inconsistent Scope 3 estimation measurements, as well as wider technical issues such as "double counting" by asset owners and asset managers. Consensus around Scope 3 reporting parameters is still emerging, and further industry work should be done to determine the value and feasibility of calculating and disclosing Scope 3 GHG emissions for the benefit of investors. We will continue to seek opportunities to promote and provide investor-useful disclosure.

Sustainability-Related Business Indicators

The below figure provides select business indicators across sustainable investing and asset stewardship.

Figure 23
Select 2023 Business Indicators

Business Indicator	As of 31 December 2023
Sustainable Investing AUM[23] ($ billions)	$650
Number of Sustainable Investing Funds[24]	146
Number of Environmental Shareholder Proposals Voted in 2023[25]	206
Number of Environmental Engagements in 2023	200
Number of Climate-focused Engagements in 2023	162

Source: State Street Global Advisors, 31 December 2023.

Appendix: State Street Global Advisors UK Domiciled Legal Entity TCFD Disclosures

State Street Global Advisors Limited ("SSGAL"), Managed Pension Funds Limited ("MPFL"), and State Street Unit Trust Management Limited ("SSUTML") (together, the "State Street Global Advisors UK Entities") each place reliance on the climate-related financial disclosures contained in the State Street Global Advisors group-level TCFD report, which applies in respect of the activities of State Street Global Advisors globally.

State Street Global Advisors Limited A limited liability company organized under the laws of England and Wales; authorized and regulated by the Financial Conduct Authority ("FCA").

Managed Pension Funds Limited A limited liability company organized under the laws of England and Wales; authorized by the Prudential Regulation Authority ("PRA") and regulated by the FCA and the PRA.

State Street Unit Trust Management Limited A limited liability company organized under the laws of England and Wales; authorized and regulated by the FCA.

The disclosures made in the State Street Global Advisors group level TCFD report and this Appendix are provided by the above State Street Global Advisors UK Entities pursuant to the reporting requirements set out in Chapter 2 of the FCA ESG sourcebook.

Governance Arrangements The Boards of the State Street Global Advisors UK Entities each place reliance on the SSGA EMEA governance framework to oversee risk and facilitate effective oversight of their respective business functions.

This governance framework includes the UK Senior Management Committee ("UK SMC"), which includes senior employees from SSGA's business and corporate support teams, that manage and oversee the business conducted by SSGA in the UK.

The UK SMC is, in turn, supported by the following SSGA committee architecture:

Figure 24
Governance Arrangements

Committee	Responsibility
Global Fiduciary and Conduct Committee (including the SSGA EMEA Fiduciary and Conduct Committee)	Responsible for addressing fiduciary and business conduct matters across SSGA and oversight of SSGA's collective investment funds
Global Risk Committee (including the SSGA EMEA Risk Committee)	Responsible for ensuring the alignment of business strategy, risk appetite, and risk management standards
Global Product Committee (including the SSGA EMEA Product Committee)	Responsible for the creation of products based on SSGA's investment strategies
Global Operations and Compliance Committee (including the SSGA EMEA Valuation Committee)	Responsible for SSGA's operating infrastructure compliance functions
Global Investment Committee	Responsible for SSGA's investment philosophy and processes, investment strategies, approach to new markets and instruments, and relationships with counterparties
Environmental, Social, and Governance Committee	Responsible for overseeing SSGA's ESG and proxy voting framework and philosophy

The Boards of the SSGA UK Entities delegate to the UK Remuneration Committee to oversee remuneration arrangements and to the SSGA EMEA Capital and Liquidity Steering Committee to oversee capital and liquidity matters.

The Boards of the SSGA UK Entities also refer to the State Street UK Country Committee ("UK Country Committee") which provides oversight of activities for all businesses operating in the UK, with a particular focus on transversal risks and issues, such as IT resiliency, corporate continuity, and country level HR matters.

All of the major business areas of SSGA are subject to periodic review by State Street's Corporate Audit Division.

MPFL and SSUTML Working Groups

In addition to being supported by the UK SMC and committees referred to above, the MPFL Board and SSUTML Board have established, respectively, the MPFL Working Group and SSUTML Working Group to oversee day to day management activities of MPFL and SSUTML. The Working Groups are composed of the CEO of MPFL or SSUTML (as applicable) and other senior individuals representing the major business lines and relevant professional service functions.

Alex Castle
CEO of State Street Global Advisors Limited

Rebecca Bridger
CEO of Managed Pension Funds Limited and State Street Unit Trust Management Limited

Endnotes

1 This figure is presented as of 31 December 2023 and includes approximately $64.44 billion USD of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

2 We do not require companies to adopt net zero ambitions or join relevant industry initiatives. For companies that have adopted a net zero ambition and/or climate transition plan or are in the process of developing a climate transition plan and request our feedback, we may discuss our disclosure criteria and provide guidance accordingly.

3 "Eligible funds" or "eligible index equity assets" include all fund and client accounts managed by State Street Global Advisors that employ an equity index strategy and which have granted, or are able to grant, proxy voting authority to State Street Global Advisors.

4 For more information about the legal entities for which TCFD reporting is a regulatory requirement, please refer to the appendix.

5 State Street Global Advisors identifies sustainable investing funds as those that utilize an investment strategy that falls into one of the following three categories, which are not mutually exclusive: Negative Sustainability Screen, Positive Sustainability Screen, Third-Party ESG/Sustainable Investing Index. The methodology used by State Street Global Advisors to identify sustainable investing accounts may differ from the methodology used under certain classification and disclosure regulatory regimes.

6 Kölbel, J. F., Heeb, F., Paetzold, F., & Busch, T. (2020). "Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact." *Organization & Environment*, 33(4), 554-574. https://doi.org/10.1177/1086026620919202.

7 Source: State Street Global Advisors, https://ssga.com/uk/en_gb/institutional/ic/insights/portfolio-versus-real-world-decarbonization.

8 Estimated and unaudited State Street Global Advisors sustainable investing assets under management as of 31 December 2023, are approximately $650 billion as calculated by State Street Global Advisors for Sustainable Investing Accounts. State Street Global Advisors defines a "Sustainable Investing Account" as a client account (i.e., fund or separately managed account managed by State Street Global Advisors) that uses an investment strategy that falls into one of the following three categories, which are not mutually exclusive:

a. Negative Sustainable Investing Screen: A "Negative Sustainable Investing Screen" (also known as an exclusionary screen) is a screen incorporated into the investment strategy used for the management of a portfolio that results in the exclusion from the portfolio of securities of sector or industry). Negative Sustainable Investing Screens include but are not limited to State Street Global Advisors Point of View (POV) screens, norms-based screens, Socially Responsible Investing (SRI) screens, and screens provided by other third parties (including client-directed screens). Where a client's investment agreement and/or investment guidelines specify, or the client otherwise communicates to State Street Global Advisors that the application of a negative screen is to satisfy a purpose other than sustainable investing (e.g., diversification), such screens do not qualify as a Negative Sustainable Investing Screen.

b. Positive Sustainable Investing Screen: A "Positive Sustainable Investing Screen" is a screen incorporated into the investment strategy used for the management of a portfolio that intentionally includes securities of issuers identified as having positive sustainability characteristics relative to the issuer's industry or sector peers. Positive Sustainable Investing Screens include but are not limited to targeting an overall improvement of a portfolio's sustainable investing profile as compared to a benchmark or stated investment guideline, measured by a sustainability score or a sustainability metric, or investing only in issuers within an industry or sector that score higher within that industry or sector than the issuer's peers.

c. Third-Party ESG/Sustainable Investing Index Investment Strategies: An index-tracking client account qualifies as a Sustainable Investing Account if it tracks a Third-Party ESG/Sustainable Investing Index. An index is deemed to be a "Third-Party ESG/Sustainable Investing Index" if the index methodology incorporates ESG/sustainability factors or characteristics that are used by the third-party index provider to determine which securities and/or how much in weight are included as index constituents. A client account that uses a Third-Party ESG/Sustainable Investing Index as a reference benchmark for performance or reporting purposes, but does not seek to track such index as an investment strategy, does not qualify as a Sustainable Investing Account unless it meets at least one of the first two prongs of the definition of "Sustainable Investing Account" set forth above.

The methodology used by State Street Global Advisors to identify sustainable investing AUM may differ from the methodology used under certain classification and disclosure regulatory regimes:

- State Street Global Advisors' sustainable investing AUM represents those accounts that are classified as Sustainable Investing accounts per our internal policy. That policy categorizes accounts that apply negative sustainable investing screening, positive sustainable investing screening, and/or track a third-party ESG/sustainable investing investment index.
- State Street Global Advisors' sustainable investing AUM may include AUM of client accounts for which a negative screen is applied at the request of the client for regulatory or other purposes, which may not be disclosed to State Street Global Advisors, that State Street Global Advisors believes results in the exclusion from the client's portfolio of securities based on sustainability criteria.

9 See note 2.

10 State Street Global Advisors defines carbon-intensive industries as the following Global Industry Classification Standard (GICS) subindustries: Electric Utilities, Integrated Oil & Gas, Multi-Utilities, Steel, Construction Materials, Independent Power Producers & Energy Traders, Oil & Gas Refining & Marketing, Oil & Gas Exploration & Production, Diversified Metals & Mining, Airlines, Commodity Chemicals, Industrial Gases, Aluminum, Oil & Gas Storage & Transportation, MultiSector Holdings, Diversified Chemicals, Fertilizers & Agricultural Chemicals, Air Freight & Logistics, Agricultural Products, Environmental & Facilities Services, Coal & Consumable Fuels, Paper Packaging, Railroads, Marine, Automotive Retail, Oil & Gas Drilling, Food Retail, Paper Products, Hotels, Resorts & Cruise Lines, Internet & Direct Marketing Retail, Hypermarkets & Supercenters, Precious Metals & Minerals.

11 Source: State Street Global Advisors, as of 31 December 2023. Includes environmental shareholder proposals per ISS' proposal code categorization between 1 January 2023 — 31 December 2023. Support for all environmental proposals, including management climate-related transition plan/reporting proposals (i.e., Say on Climate) per ISS' proposal code categorization, was 24% in 2023. Given the complexities with defining climate-related shareholder proposals and the increase in proposals addressing multiple climate and environmental topics, we no longer report climate-related proposals as a standalone category.

12 Ibid.

13 Ibid.

14 Defined as the risk of legal or regulatory sanctions, material financial loss, or loss to reputation resulting from failure to comply with regulatory obligations (i.e., applicable final rules, laws, statutes and regulations, formal regulatory guidance, and self-regulatory organization standards that regulate State Street's legal entities, financial services activities and functions that support those activities).

15 As per MSCI, a portfolio's Implied Temperature Rise measures, in aggregate, a portfolio's temperature alignment (in °C) to keeping the world's temperature rise to 2°C by 2100. The calculation uses an aggregated budget approach that compares the sum of financed projected carbon emissions against the sum of financed carbon emission budgets for the underlying portfolio holdings. This provides an estimation of the total carbon budget under-/overshoot of the portfolio. The total portfolio carbon emission over/undershoot is then converted to a degree of temperature rise using the science-based ratio approach of Transient Climate Response to Cumulative Carbon Emissions (TCRE). For example, an Implied Temperature Rise of 2.5°C assigned to a given portfolio would indicate that the portfolio is exceeding its fair share of the global carbon budget, and that if everyone exceeded their fair shares by a similar proportion, we would end up in a world with ~2.5°C of warming.

16 The Regional Model of Investment and Development (REMIND) — Model of Agricultural Production and its Impacts on the Environment (MAgPIE) is an integrated assessment model built by the Potsdam Institut fur Klimafolgenforschung (PIK) for the purpose of climate modeling.

17 Our Net Zero Target Assets are dedicated equity and/or corporate bond portfolios that also meet one of the following criteria: (i) the portfolio is managed pursuant to a climate strategy; (ii) the portfolio is a fund or separately managed account domiciled in Europe; or (iii) the portfolio is a separately managed account domiciled in the US, APAC, or Middle East, but only if the client has embraced net zero or a similar climate pledge.

18 See note 10.

19 We consider a company to be achieving net zero if they meet the following definition set by the IIGCC Paris Aligned Investment Initiative (PAII) Net Zero Investment Framework: the company's current emissions are at/close to 2050 net zero level, and they have an investment plan/business model in line with net zero.

20 We consider a company to be aligned with net zero if they meet the following five criteria based on the PAII Net Zero Investment Framework: (i) a long term 2050 goal consistent with achieving global net zero, (ii) short- and medium-term emissions reduction target (scope 1, 2 and material scope 3), (iii) current emissions intensity performance relative to targets (scope 1, 2 and material scope 3), (iv) disclosure of scope 1, 2 and material scope 3 emissions, and (v) a quantified plan setting out the measures that will be deployed to deliver GHG targets, proportions of revenues that are green and where relevant increases in green revenues.

21 Financed Emissions are the greenhouse gas (GHG) emissions linked to the companies in which we have invested our clients' assets on an equity or fixed income basis.

22 Financed Scope 1+2 carbon emissions are the Scope 1 and Scope 2 GHG emissions linked to the companies in which we have invested our clients' assets on an equity or fixed income basis. Scope 1 emissions are direct GHG emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 emissions are indirect emissions from the generation of purchased energy, such as electricity, steam, heat, or cooling. Carbon emissions intensity measures the absolute emissions of an investment divided by the investment volume in USD, expressed as tonnes of CO_2eq/$M invested.

23 See note 8.

24 See note 5.

25 See note 11.

About State Street Global Advisors

For four decades, State Street Global Advisors has served the world's governments, institutions and financial advisors. With a rigorous, risk-aware approach built on research, analysis and market-tested experience, we build from a breadth of index and active strategies to create cost-effective solutions. As pioneers in index and ETF investing, we are always inventing new ways to invest. As a result, we have become the world's fourth-largest asset manager* with US $4.34 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2022.
† This figure is presented as of March 31, 2024 and includes ETF AUM of $1,360.89 billion USD of which approximately $65.87 billion USD is in gold assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

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Marketing communication

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